

INTERNATIONAL SEARCH REPORT

International Application No

PC 32004/000431

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C25C3/18 C25C3/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C25C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, COMPENDEX, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>DATABASE COMPENDEX [Online] ENGINEERING INFORMATION, INC., NEW YORK, NY, US; SEKHAR J A ET AL: "Micropyrretically synthesized porous non-consumable anodes in the Ni-Al-Cu-Fe-X system" XP002307620 Database accession no. EIX98154075458 abstract & LIGHT MET (WARRENDALE PA); LIGHT METALS: PROCEEDINGS OF SESSIONS, TMS ANNUAL MEETING (WARRENDALE, PENNSYLVANIA); LIGHT METALS 1997 MINERALS, METALS & MATERIALS SOC (TMS), WARRENDALE, PA, USA, 1997, pages 347-354, ----- -/--</p>	1-26

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"G" document member of the same patent family

Date of the actual completion of the international search

26 November 2004

Date of mailing of the international search report

22.11.04

Name and mailing address of the ISA

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 2004/035871 A (DE NORA VITTORIO ; NGUYEN THINH T (CH); DURUZ JEAN-JACQUES (CH); MOLTE) 29 April 2004 (2004-04-29) the whole document -----	1-26
A	US 5 725 744 A (DE NORA VITTORIO ET AL) 10 March 1998 (1998-03-10) column 5, lines 61-67; example 1 column 7, lines 22-42 -----	1-26
A	US 5 006 209 A (BECK THEODORE R ET AL) 9 April 1991 (1991-04-09) the whole document -----	1-26
A	US 6 379 512 B1 (JURIC DRAGO D ET AL) 30 April 2002 (2002-04-30) column 4, lines 5-52 column 6, lines 8-38 -----	1-26
A	B. PIRIOU ET AL.: "Essais de caractérisation structurale des bains cryolithiques par spectrométrie infrarouge et par hypertrempe" REVUE INTERNATIONALE DES HAUTES TEMPERATURES ET DES REFRACTAIRES, vol. 15, no. 2, 1978, pages 139-146, XP009040625 FRANCE the whole document -----	

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ational application No.
PCT/IB2004/000431

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-26

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-26

Claims 1-26 are directed towards a cell and method for electrowinning aluminium, comprising

- a metal-based anode having an outer part that contains at least one of Ni, Co and Fe and an electrochemically active oxide-based surface,
 - a fluoride-containing molten electrolyte being at a temperature of below 950 °C and having a particular composition.
-

2. claim: 27

Claim 27 is directed towards an aluminium electrowinning anode made from an alloy consisting of

- 65 to 95 wt.% Fe,
 - 2 to 10 wt.% Al,
 - Ni and/or Co and/or Cu,
 - Nb and/or Hf and/or further constituents, the total amount being restricted to 0.25 to 3 wt%.
-

3. claim: 28

Claim 28 is directed towards an aluminium electrowinning anode made from an alloy consisting of

- 50 to 65 wt.% Ni and/or Co,
 - 25 to 40 wt% Fe,
 - 3 to 9 wt% Cu,
 - 1 to 3 wt.% Al,
 - Nb and/or Hf and/or further constituents, the total amount being restricted to 0.25 to 5 wt.%.
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mation on patent family members

International Application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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